

REMARKS**Rejections Under 35 USC 102**

The Office Action rejects claims 1, 2, 6, 13, 14, 21, 22, 27-29, 31, 33, 39, 40, 42, 50-52, 54 and 55 as being anticipated by U.S. Patent No. 6,272,523 of Factor.

Claim 1 recites a computer system having a plurality of *hardware* resources, a plurality of logical resources, and a plurality of functional processes. The computer system further includes a configuration process for configuring certain of the plurality of the functional processes on particular ones of the logical resources, and a mapping process for creating a map associating the plurality of hardware resources with the plurality of logical resources.

Factor is generally directed to providing *load balancing* in a distributed network system. More particularly, it discloses a logical processing system having a logical interface that can receive a logical process (i.e., a request) from a client. The logical interface uses a mapping server that includes a selection function for choosing a particular physical process (e.g., a server process, such as servers 1, 2, or 3 shown in FIGURE 2 of Factor) for processing the request. In other words, the logical interface maps the logical process to a particular physical process. The selection function can be programmed to provide dynamic load balancing of the incoming requests.

Factor does not teach a mapping process for creating a map associating a plurality of *hardware resources* with a plurality of logical resources. Rather, it describes associating a logical process with a particular physical process, and *not* with a particular hardware resource. In other words, the mapping provided in Factor is for efficient routing of requests received, for example, at a web site to particular server processes executing on that web site. It does not, however, teach mapping hardware resources of the web site to a plurality of logical resources. In addition, unlike claim 1, it does not teach a configuration process for configuring selected functional processes, e.g., device drivers, on particular logical resources.

Hence, Factor fails to teach salient features of the system of claim 1, and their associated advantages. For example, in the present invention the logical resources provide a layer of abstraction between the computer system's hardware and software that can allow installing new

hardware or software, and performing upgrades (or downgrades), without disrupting other applications executing on the system.

Thus, claim 1 and claims 2, 6 that depend on claim 1 distinguish patentably over Factor.

Independent claim 13 recites a method of operating a computer system by creating logical resources having characteristics similar to particular hardware resources, generating a map of the logical resources to the hardware resources, and provisioning services to the logical resources.

The arguments presented above with respect to claim 1 apply with equal force to establish that claim 13 also distinguishes over Factor. In particular, Factor fails to teach creating logical resources having characteristics similar to particular hardware resources, much less generating a map of *logical resources to hardware resources*.

Hence, claim 13, and claims 14 that depends on claim 13 distinguish over Factor.

Independent claim 21, as amended, recites a method of operating a computer system that includes the steps of configuring a process on a logical resource that provides a model of a physical resource, and applying the configured logical resource to a physical source. Factor does not teach or suggest utilizing a logical resource to model a physical resource. Rather, it simply describes mapping a logical address to a physical address, as discussed in detail above.

Hence, claim 21 and claims 22 and 27-29, 31, 33, 39, 40, 42, 50-52 and 54, which depend either directly or indirectly on claim 21, distinguish patentably over Factor.

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The Office Action rejects claims 10-12, 32, 34-38, and 53 as being obvious over Factor.

Claims 10 and 12 depend on claim 1 and recite that the functional processes include, respectively, device driver processes and Asynchronous Transfer Mode protocol applications. As discussed in detail above, Factor does not teach or suggest a mapping process for creating a map that associates plurality of hardware resources to a plurality of logical resources – a salient feature of claim 1 and hence of claims 10 and 12. Further, the Examiner does not provide any

other reference that would bridge the gap in teachings of Factor. Accordingly, similar to claim 1, claims 10 and 12 are also patentable.

Claim 32 depends indirectly – via claim 27 – on claim 21, and hence incorporate patentable features of this claim. As discussed above, Factor fails to teach or suggest features of amended claim 21, such as, configuring a process on a logical resource that provides a model of a physical resource. Hence, similar to claim 21, claim 32 is also patentable over teachings of Factor.

Claim 34 depends on claim 21, and further recites that configuring a process on a logical resource comprises filling in a field in a table in a configuration database. Factor does not teach configuring a process on a logical resource, which models a physical resource. Rather, as noted above, it is directed to a load balancing system that maps a logical address to a physical address. Accordingly, claim 34 distinguishes patentably over Factor.

The same arguments apply with equal force to establish that claims 35-38, which depend either directly or indirectly on claim 21, are also patentable.

Claim 53 depends on claim 21 and further recites adding the physical resource to the computer system, and delaying application of the configured logical resource to the physical resource until the physical resource is added to the computer system. As discussed above, Factor does not teach applying a logical resource to a physical resource, and hence it does not teach delaying application of the logical resource to a physical resource until that physical resource is added to the system.

Claims 23-26 and 30 are rejected as being obvious in view of the combined teachings of Factor and U.S. Patent No. 6,088,330 of Bruck.

Claim 23 depends on claim 21, and further recites detecting a fault on the physical resource, failing over from the physical resource to a second physical resource, and applying the configured logical resource to the second physical resource.

As noted above, Factor does not teach applying a configured logical resource to a physical resource. Further, Bruck does not bridge the gap in the teachings of Factor. Bruck discloses a redundant distributed server, formed from an array of distributed computing nodes,

that allows fault tolerance. However, it does not teach or suggest applying a configured logical resource corresponding to a faulty physical process to another (e.g., backup) physical process after failing over from the faulty process to the backup process – features recited in claim 23.

Hence, claim 23 distinguishes patentably over Factor and Bruck. Similar arguments apply with equal force to establish that claims 24-26 and 30, which depend either directly or indirectly on claim 21, also distinguish over the combined teachings of Factor and Bruck.

The Office Action also rejects claims 3, 4, 8, 9, 15, 16, 20, 41 and 43-47 as being obvious over Factor in view of U.S. Patent No. 5,704,041 of Allen.

Claims 3 and 4 depend on claim 1, and further recite that the map comprises, respectively, a logical to physical card table and a logical to physical port table.

As discussed above, Factor fails to teach features of claim 1, and hence those of claims 3 and 4, including a configuration process for configuring selected functional processes on particular logical resources, and a mapping process for creating a map that associates a plurality of hardware resources with a plurality of logical resources. Allen does not cure the shortcomings of Factor in this regard. More specifically, Allen describes a method by which a CMIP agent can maintain an up-to-date tree of managed object instances (MOI) in an OSI environment. Upon receiving a message from an OSI manager, the agent recurses through the tree below the base MOI to determine which MOIs should receive the message. Allen, however, does not teach a map for associating *hardware resources* with logical resources, and does not teach configuring selected functional process, e.g., device drivers, on particular ones of the logical resources.

Hence, claims 3 and 4 distinguish over the teachings of Factor and Allen. Similar arguments apply to establish that claims 8, 9, which also depend on claim 1, are also patentable.

Claim 15 depends on claim 13, and further recites that the map is a logical to physical port table. Neither Factor nor Allen discloses a mapping process for mapping a physical port to its corresponding logical model. Further, the Examiner does not provide any other references that could be combined with Factor or Allen to disclose the subject matter of claim 15. Hence,

claim 15 is patentable. Similar arguments apply to establish that claim 16 and 20, which depend on claim 13, are also patentable.

Claim 41 depend indirectly on claim 21 – via claims 40 and 39 – and further recites that the table comprises a logical to physical card table. Neither Factor nor Allen teaches configuring a process on a logical resource, which models a physical resource, and applying the configured logical resource to a physical resource. Hence, claim 41 is patentable over the cited references.

Similar to claim 41, claims 43-47 depend on claim 21 (either directly or indirectly). Hence, the arguments presented above apply to establish that these claims are also patentable.

Claims 48 and 49 are rejected as being obvious over Factor in view of U.S. Patent No. 6,477,566 of Davis.

Claim 48 depends on claim 21, and further recites that the logical resource represents a physical port on a forwarding card and the physical resource comprises the physical port on the forwarding card. Claim 49 depends on claim 21, and further recites that the logical resource comprises a service endpoint and the physical port comprises a port on a forwarding card.

Factor does not teach applying a configured logical resource to a physical resource. Further, Davis describes a method of managing a computer network in which functional resources of a network element, and their connectivity, are represented by data templates. It does not, however, teach applying a logical resource to a physical resource, and more particularly, applying a logical resource, representing a physical port or a service endpoint, to the physical port.

CONCLUSION

In view of the above amendments and remarks, Applicants respectfully request reconsideration and allowance of the application. The Examiner is invited to call the undersigned at (617) 439-2514 if there are any other issues.

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Respectfully submitted,

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